

"HELP US PROTECT THE GAME"

The Prairie Chicken

ITS DISTRIBUTION AND NEED
OF PROTECTION

BY

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THE PRAIRIE CHICKEN

Of the many varieties of game birds found in the Prairie Provinces it can be said, without fear of contradiction, that the prairie chicken stands highest in the estimation of the majority of sportsmen and of the people at large. It is the typical game bird of the West, and is as characteristic of the prairies as the buffalo formerly was among the animals. From the days of the old Red River Settlement down to the present time, no bird has provided more wholesome sport to the lover of dog and gun, nor fuller measure of toothsome food; no game better meets the requirements of the busy man who enjoys a few days afeld each year, and who has neither the time nor resources to indulge in more extensive and exacting hunting. In short, it is doubtful if man's fancy could conceive any finer game birds, or game that could give more profound satisfaction, than the two varieties of grouse commonly known as "chicken," and no game birds, today, demand more serious thought and attention, if we would do our full share in an endeavor to save them from a threatened extermination over the length and breadth of the broad grasslands and stubbles of the Canadian West.

THE COMING OF THE PINNATED GROUSE

The two species of prairie grouse—the pinnated and the sharp-tailed—usually spoken of collectively as "prairie chicken," were, strange to say, at one time widely separated in their natural distribution.

Early in the last century, the pinnated grouse was extremely abundant throughout Ohio and Kentucky, and in a large tract of country lying eastward from the Mississippi. In Western Canada it was absolutely unknown. Writing of his observations at Henderson, Kentucky, in 1810, Audubon, the great naturalist, stated: "In those days during the winter the grouse would enter the farmyard and feed with the poultry, alight on the houses, or walk in the very streets of the village. I recollect having caught several in a stable at Henderson, where they had followed some wild turkeys. In the course of the same winter, a friend of mine, who was fond of practising rifle shooting, killed upwards of forty in one morning, but picked none of them up, so satiated with grouse was he, as well as every member of his family. My own servants preferred the fattest flitch of bacon to their flesh, and not unfrequently laid them aside as unfit for cooking. They could not have been sold at more than one cent apiece." Among the first settlers in the wilds of northern Minnesota and Dakota the birds were little known; and in Illinois, in the '30's, the man was lucky who could kill a dozen.

Then gradually the pinnated grouse moved westward and northward. Not many years later, in Minnesota, fifty or a hundred could be shot in a single day with no great effort. By 1880 they were seen in Illinois, Iowa and Minnesota, in flocks which often numbered as many as a thousand birds. Carloads upon carloads were shipped to the markets of the eastern cities, where a constant demand awaited them. About this time they could be found in an area stretching from northern Minnesota and Dakota to southern Texas, and from Ohio to Nebraska; but the ever-increasing persecution of market hunters was steadily hedging them in. Then

the main range of the pinnated grouse moved towards the north-west. This was the line of least resistance. In 1881 a single recorded bird was shot near Winnipeg. In the Autumn of 1882 one was killed at Portage la Prairie. In 1883 they became plentiful around Pembina, and the following year were commonly seen near Winnipeg. In 1886 they appeared at Carberry. In 1895 they had reached Indian Head, Saskatchewan, and from that time on, with the spread of cultivation, they became abundant in many of the newly-settled portions of the Canadian West. As the country opened up and settlement spread northward, transforming the broad expanses of prairie grass to leagues of grain, the pinnated grouse made a corresponding northward movement.

Settlement became more intensive toward the south, and as the number of hunters increased, and the newly-cultivated lands began to appear in the north, the birds became scarcer in the range they had formerly occupied and grew in numbers in the land of their adoption. In a surprisingly short period of time they became very plentiful about the pioneer farms of Manitoba. And in the Red River Valley, side by side with the sharp-tailed grouse, they became the premier game birds. Now, in the entire area of their range, both old and new, the pinnated grouse are scarce as compared with their former numbers. They are extinct in Ohio and Kentucky, and nowhere are they as plentiful as they formerly were in those States. East of the Mississippi there is practically no good chicken shooting. They are becoming a rarity in Kansas and Nebraska; and only in Minnesota, in the Dakotas, Manitoba, and parts of Saskatchewan, can it be said, and that with no degree of certainty, that the pinnated grouse are still plentiful enough to afford a fair day's sport.

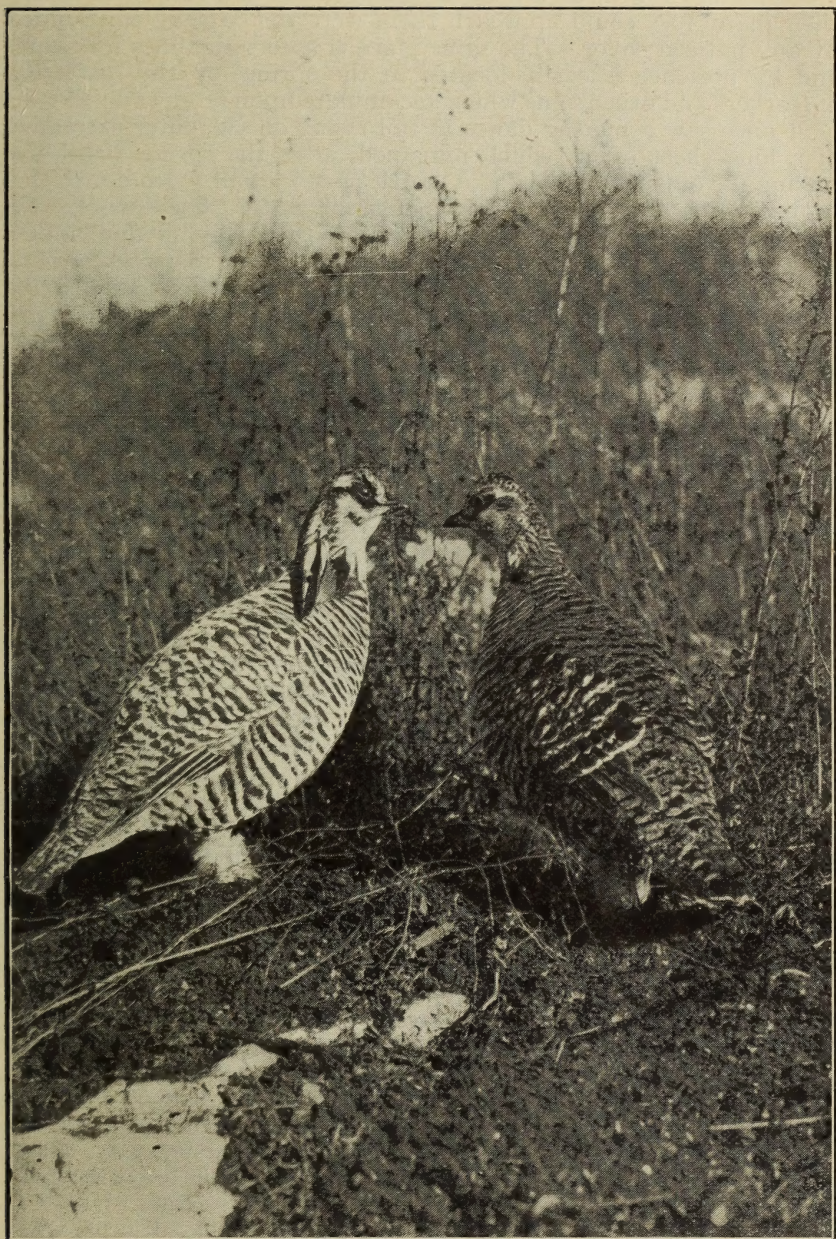
A BENEFIT TO MANITOBA

In Manitoba, the pinnated grouse discovered a new realm well adapted to its requirements. From the time of its first appearance it continued to thrive and increase, and today it is recognized as one of our native birds.

Few grouse the world over can boast of superior beauty. Vigorous and rugged, it is well fitted to withstand the tests of winter. It is prolific, stout-hearted, and strong of wing; lies well to the dog, and offers a comparatively easy mark to any who would seek outdoor diversion and health in the great, sun-kissed land of the western prairies. As a destroyer of weeds and insects it is one of the farmers' best friends. From May to October about one-third of its food consists of insects, and it takes little grain other than what remains in the stubbles after the crops are cut. It destroys more grass hoppers and locusts than any other form of insect life. During an invasion of the locusts in Nebraska, Prof. Samuel Aughey found 866 locusts in the stomachs of 16 out of 20 pinnated grouse killed.

THE CHICKEN DANCE

One of the most striking characteristics of this bird, as also of the sharp-tailed grouse, is its peculiar dancing during the mating season. Everyone living on the prairies is familiar with the hollow, booming cry of the chicken in the spring; but comparatively few people avail themselves of an opportunity to witness this most



PINNATED GROUSE

interesting and strange performance. A dancing ground is usually selected on some dry, open ridge or upland unobstructed by brush or tall growths. While occupied with the all-absorbing business of love-making, the birds are quite conscious of the ease with which their many foes could approach them were the dancing surrounded by any natural cover. The same place is used sometimes for years and its presence is easily located in the spring by the scattering of feathers and other signs which accumulate upon it.

I once saw a mating dance in full swing on the outer extremity of a long sheet of ice which remained, after the spring break-up, jutting far out into Shoal Lake, north of Stonewall. No doubt this proved to be an ideal spot for a most successful "hoe-down." No uninvited guest could possibly attend without giving due notice, the smooth surface was conducive to the daintiest footwork, and at the dance-floor's very edge ample liquid refreshments were to be had for the taking. The dancing is usually carried on in early morning and late afternoon. Just as the dawn appears in the east, some old and over-ambitious cock betakes himself to the chosen ground and proceeds to announce the morning program. Proudly strutting back and forth he bellows forth his hollow, far-reaching rumblings. Other aspirants for honors presently appear, either singly or in twos and threes; then come the sedate, unassuming females, and as the sun comes over the prairie's rim and heralds in the day, the minuet is on. The booming increases in volume. At intervals, each male inflates the large, orange-colored air-sacks on his neck to bursting-point, the long, pinnated feathers on either side of the neck are erected above the head, the wings trail the ground like a strutting gobbler's, and the tail is spread fan-like above the back. Suddenly lowering his head and releasing the air from the uncanny appendages, the bird sends his unmusical love-song speeding over the grassy wastes. Another and another take up the performance, the females idly watching, as though but half interested in the love-mad dance. The males vie with one another to be the most conspicuous. Booming, chuckling in demoniac laughter, rushing hither and thither, leaping into the air, and continually fighting, they each in turn become subdued and scatter away across the stubbles in search of breakfast, some with their newly-won mates, others to return to the tryst toward sunset. The mating season begins as soon as the snow has disappeared, and continues well into May.

By the middle of the month they are paired off and little is again seen of the birds until the young are hatched and able to fly. During the nesting season a great source of danger to the birds is the prairie fire. As they usually nest on high ground to escape the spring floods the nests are in constant danger from this element. On one small ridge of a few acres, I have found the scorched eggs of five different nests that had lain in the path of a passing fire. From twelve to fifteen eggs are laid, buff-colored, sometimes finely speckled with brown. One brood is usually reared in a season, though in cases where the first nest has been destroyed a second is probably sometimes made. The broods remain together till the autumn, when they mingle with others of their kind and form large flocks. As winter sets in, a partial migration takes place and the bulk of the birds move southward a short distance, often into Minnesota and Dakota, or seek shelter in the scrub-lands bordering the prairies.

THE SHARP-TAILED GROUSE

The other variety, the sharp-tailed grouse, has always occupied a larger territory than its more southerly and eastern relative. Its general range includes suitable tracts of country from New Mexico to Alaska, and from Lake Michigan to north-eastern California, but in many portions of this range it is becoming extremely scarce or has disappeared. It adapts itself less readily to changed conditions than the pinnated grouse and is more a bird of the wild lands and brush country than of the cultivated fields and prairies. In Canada, it has even been seen as far east as Fort George, in Labrador, and the Saguenay River and Lake St. John, in Quebec; as far west as Kamloops and the Cariboo Trail, in British Columbia; and as far north as the Yukon and Great Slave Lake. In the old days, it was always extremely plentiful in the country now occupied by Manitoba, Saskatchewan and Alberta, but it has shown a marked and steady diminution in the past few years.

Previous to the appearance in Manitoba of the pinnated grouse, the sharp-tail was the undisputed and only prairie chicken of the Canadian West; but ever since the coming of the southern bird, doubt and argument have existed among a great many people as to which is "chicken" and which is not. Various have been the conclusions arrived at in an endeavor to adjust the two birds to their proper classification. Some preferred to leave the native bird as it had always been—just plain "chicken," and to designate the newcomer plain "grouse," or "Minnesota grouse," and working upon this basis, an erroneous belief has become prevalent that one bird is a grouse and the other is not. Again matters were facilitated by applying the appropriate names of "sharp-tail" to the one, and "square-tail" to the other. Yet others, quite content with an all's-fish-that-comes-into-the-net idea, have been satisfied to hang the two birds together under the general appellation of "prairie chicken." When they come upon the table hot and juicy and nicely browned, the latter designation is probably quite sufficient, though the sharp-tailed grouse is considered by many to be the better table bird. The fact remains, however, and always will, that both birds are distinctly separate varieties of grouse, and both are equally worthy of being termed "prairie chicken" for general purposes.

The habits of the sharp-tailed grouse differ little in a general way from the pinnated. Like its near relative, it resorts to the same means of winning its mate—the birds collecting for the dance in like manner, and, if anything, fighting more fiercely. The only dance of sharp-tails I have witnessed was remarkable for its rowdiness; and as the rival suitors warmed up, it took on all the pugnacious propensities of a Donnybrook fair. The male sharp-tail possesses more rudimentary air-sacks on the neck than the previous species, and though these fulfil their part in the general chicken chorus in the mating season, the sound produced is less far-reaching and consists more of a series of grunts and hollow chucklings than the long-drawn booming of the pinnated bird. The sharp-tail's nest is usually made in the edge of the brush or beneath some low bush on the prairies. From 12 to 14 eggs are laid, almost identical in coloring with those of the pinnated grouse. Old and young remain in the grasslands and wild stretches of country

throughout the summer and are seldom seen upon the cultivated prairies until harvest time, when they resort to the stubbles. As the hard frosts and early snows set in they take refuge in the brush, and congregate in large flocks. In normal years, these flocks will sometimes comprise hundreds of birds, until all in a district will probably form several large packs. The sharp-tail is a more retiring bird than the pinnated grouse and loves the wild scrub untouched by cultivation, retreating before the conditions which the other bird has followed. This fact accounts for the supposition among many people that one drives the other from its haunts. It is the true prairie chicken throughout the Canadian West, and has held undisputed sway for ages before the invasion of its more southerly relative. During cold weather the sharp-tails are never far from the shelter of the woods. Here they spend a part of each day in the tees, browsing on the tender buds, which, with the red rose-hips and various berries and seeds, form their winter diet. They are also extremely fond of collecting on the settlers' strawstacks, and if unmolested, will even come to feed around the farmyard and out-buildings. Toward nightfall, when the weather is very severe, both the sharp-tailed and pinnated grouse will dive under the snow, after the manner of the partridge or ruffed grouse, and will burrow beneath the surface for a considerable distance. Unless disturbed, the sharp-tails will remain in and about the same locality all winter, seldom flying far. In bright weather they work out, in flocks, to the open, in search of berries and weed-tops protruding above the snow.

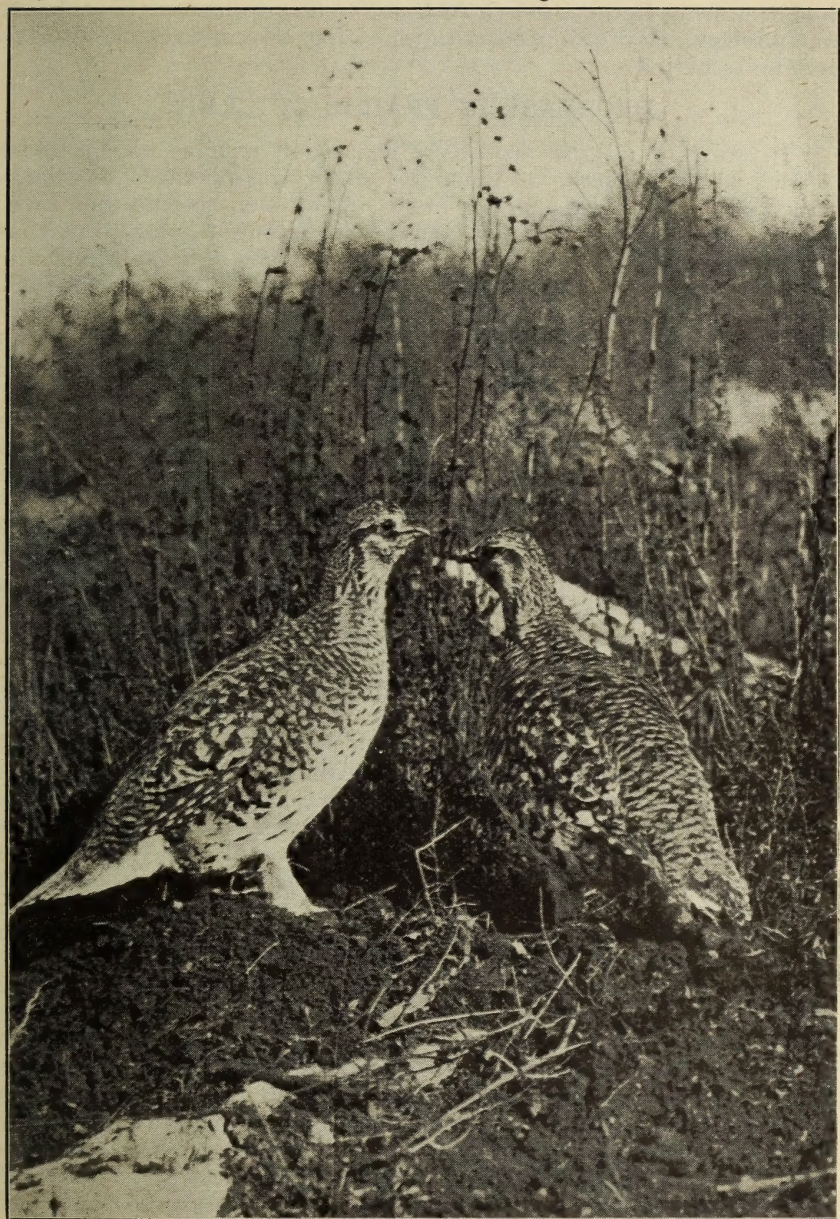
HYBRID GROUSE

Records are quite common of the sharp-tail crossing with the pinnated grouse; and were it possible to make anything like exhaustive experiments, it would be interesting to ascertain if the cross-bred or hybrid grouse would remain constant as a separate species, combining all the characteristics of the parent stock.

PROTECTIVE MEASURES

Efforts have been made, by protective laws, to re-establish prairie chicken where they have become extremely scarce or extinct in the United States. But all in vain. The Lacey Act, which prohibits interstate traffic in game, has virtually stopped the sale of the birds in all the large cities of the East, and the laws relating to close seasons have been greatly improved; but in several States, as in a portion of Western Canada, these still appear to be much too long, and the chicken flocks decrease annually as the hunting increases.

In Arkansas the open season is from November 1st to December 1st; in Illinois, October 1st to October 16th; in Indiana, October 15th to November 1st; in Iowa, September 1st to December 1st; in Minnesota, September 7th to November 7th; in Montana, September 15th to October 16th; in Nebraska, September 1st to December 1st; in North Dakota, September 7th to November 2nd; in South Dakota, September 10th to October 10th; in Texas, November 1st to February 1st; in Wisconsin, September 7th to October 1st, with a portion of the State closed until September, 1919; in Alberta, October 1st to December 1st; in British Columbia, September 15th to October 16th; in Saskatchewan, September 15th to November 1st; in North-West Territories, September 1st to January 1st;



SHARPTAILED GROUSE

and in the Yukon, September 1st to March 15th. In Idaho, Kansas, Michigan, Missouri, Oklahoma, Oregon and Ontario, prairie chicken cannot be shot at any time; and in Ohio and Kentucky, sad to relate, no mention of them is made in the game laws, by sheer force of circumstances. In Manitoba for some years past the open season has been from October 1st to 20th. The Government is considering the advisability of prohibiting the shooting of prairie chicken for an indefinite period.

DECREASE IN PRAIRIE CHICKEN

In spite of all the protective legislation enacted in the older settled areas formerly occupied by either the pinnated or sharp-tailed grouse, the birds are not increasing or even holding their own; and in our own Province the fact is being brought home to us that they are reaching a point of alarming scarcity. Some think the prairie chickens are making their last stand on the Canadian prairies; others believe that the extreme scarcity of birds will be gradually righted by nature's laws; still others claim that the hunter plays no appreciable part in the decrease of birds; and too many give the question no thought whatever.

During the last few years, and more especially at the present time, the steady decrease in the number of prairie chicken has been the source of much wonder, speculation and argument. The question is controversial to the last degree, for the reason that there is no final authority to consult, no arbiter before whom to lay the innumerable claims, and no one, in fact, who would care to assume so risky an honor. In vain, it would seem, have many reasons been put forward to account for the growing scarcity of birds; and doubt still exists, as it will continue to do, in-so-far as the basic cause of this scarcity is concerned; but a careful perusal of the more pronounced perils to which the whole grouse family is today being subjected, will suggest that the prairie chicken's ranks have become sadly thinned, not so much from any specific agency as from an accumulation of adverse causes. Any one of these natural causes embraces a menace to the birds which they are able to overcome, but collectively, and if applied continuously, they spell disaster when re-enforced by man's baneful influence.

To locate the outstanding natural enemies of the prairie chicken is not difficult.

Leaving aside the possibility of disease epidemic (of which we have no record, if it does exist), we ought to be able to reduce these agencies of destruction to a group, to which, in whole or in part, we can feel justified in attributing the scarcity of birds so far as Nature is concerned. Disease naturally suggests itself, for grouse of all kinds have become scarce on the continent, and it is evident that their reduction in numbers is due, in large measure, to a common cause or combination of causes. Epidemics are known to attack different species when abnormal over-production upsets the laws which govern the true balance of Nature. We have a common and constantly recurring example of this in the periodical increase and decrease of the varying hare, or "bush rabbit" as it is more commonly called. In Europe and Great Britain, where most game is artificially raised on preserves, this same fact is thoroughly understood, and over-production is carefully guarded against. But, to apply this theory, by way of explanation, to our ever-decreasing grouse,

is merely to enter the field of useless argument. It is well known that none of the native game birds are nearly as plentiful on this continent as in the earliest days of settlement; and though we are told of, or remember, "off-years" when this or that species became temporarily scarce from natural causes, we also know that never in the memory of the oldest inhabitant did the prairie chicken decrease to such a low point as is the case at present. To suggest the possibility of an epidemic of disease from other causes than over-production is to conjure up the improbable.

Among all of the more common species of mammals and birds, to say nothing of insects, Nature has provided that there shall be an over-abundant natural reproduction. This is an infallible law and one absolutely essential to the perpetuation of most species. The reason for this is readily apparent. The ratio of destruction, by natural means, must be overcome by a corresponding ratio of increase, or, failing in this, the species will become abnormally scarce or practically non-existent. If a species is known to reproduce at a high rate annually and yet does not show a resultant general increase in numbers as time goes on, and its numbers remain about stationary, then the ratio of destruction in that species is merely counterbalanced by its reproducing powers. Thus does Nature maintain her true balance. Working from this hypothesis, we can say conclusively that the ratio of destruction among the grouse of America has been, of late, far in excess of their powers of reproduction; and that Nature's balance has been upset in such a way as to bring several species to a low ebb.

CAUSES OF ABNORMAL DECREASE

What are the forms of these destructive agencies which are waging such war upon the grouse ranks? By leaving man out entirely for the present, we do not have to seek far to find them. First of all there are the natural predatory foes, the goshawk and allied species, the great-horned owl, crow, coyote, fox, skunk, weasel, etc. Now if these species which prey upon the grouse and their eggs were maintained in their proper balance in conjunction with other species, it would not be reasonable to say that they could be the means of depleting the country of prairie chicken, else why did they not do so ages and ages ago? Only such species as have become abnormally plentiful or which have over-reached in comparative numbers the places Nature long ago allotted to them, or those which have suffered abnormal loss of the natural prey which was originally assigned to them, could possible attack grouse so unremittingly as to reduce them to their present numbers. Several isolated species might be brought under this head; but could these alone, unaided by some greater destructive agency, wreak such havoc? To say the least, it is improbable.

There is no doubt that the crow has increased under man's influence, and the coyote is becoming more plentiful of late years, while his natural prey, the bush-rabbit, has temporarily become scarcer. Of the other predatory species mentioned, it can be said that, with the possible exception of the goshawk, they have remained in approximately the proper places Nature long ago intended them to occupy. Some seasons they will individually appear in increased or decreased numbers, but not sufficiently increased at any time as to become a permanent pest.

THE CROW

In any newly-settled country, where climatic changes, variations in physical features and altered conditions of life are directly the result of man's actions, there is a corresponding evolution of change among the wild creatures peculiar to that country. Different species show a marked and abnormal increase or decrease as the new conditions favor or retard them. Before the surmounting influence of settlement, the buffalo vanished. The elk is only to be found in a few of the more secluded corners of his once great range. The beaver no longer frequents our waterways as in the days gone by. The wild pigeon, whose immense flocks some among us still recall, is extinct; and many others of our native birds and animals have steadily been reduced in numbers. But the increase in the numbers of a few species has been almost as noteworthy; and there seems to have been chosen for this group several individuals which can neither claim usefulness nor beauty as compared with those which threaten soon to disappear. The most conspicuous bird in this class is the crow, and with everything in his favor, he has flourished and increased prodigiously. No doubt the crow was plentiful enough before the settlement of this country, but the conditions under which he lived were not so conducive to his welfare as at the present day. Nature had not provided that the crow should predominate excessively over the birds upon which it preys; and we can quite believe that the crows were often put to sore straits in their battle for existence. In other words Nature kept them where they belonged. But, man, in his coming, has been their benefactor. He has never molested them to any extent; in fact, he has caused a decrease in their natural enemies; and has provided a constant and various supply of food which is always at the disposal of the black rascals. If any good at all can be accredited to the crow, it is his gift as a scavenger and his appetite for several forms of insect life. As against this he does not hesitate to attack the grain in the stooks; and I have seen large numbers of them feeding in standing crop and fairly trampling it down in several spots in one field. But it is in the spring and early summer that the crow commits deeds beside which his dingy coat pales and his good deeds are forgotten. Then it is that he takes upon himself the dual role of thief and murderer, and attacks without mercy the eggs and young of other birds helpless to defend their own. He scours the prairies and fields daily for food with which to nourish his undeserving offspring; and countless eggs and young of other birds are pillaged to provide for the infant cannibals in their nest of sticks. One of the chief sufferers at this season is the nesting prairie chicken, and by no means a small factor in the decrease of the latter's brood is the robbing of her nest by the crow. When we see the immense numbers of crows which are scattered over the entire country during the nesting season, we cannot but wonder that any of the chicken broods and eggs escape. Were it not for the patrolling of the prairies by that plucky little corporal, the kingbird, who never hesitates to harass and drive off each and every crow that comes within his beat, this wholesale destruction of young birds and eggs would probably be doubled. We have had a bounty on gophers, and the wolf bounty still exists, and there seems to be no reason why the crow, sooner or later, should not receive his full share of attention, for he commits crimes in comparison to which the mis-

deeds of the others are insignificant. If we need proof of this we need only to consider the thousands upon thousands of the offspring of insect and seed-eating birds which are annually devoured by crows.

THE GOSHAWK

Although the past season (1916) has shown a remarkable increase in the goshawks, there is no serious likelihood that they will continue in such numbers. The goshawk is one of the most rapacious of our birds of prey, and seems to often kill other birds from a mere love of killing. Many partridge and prairie chicken succumb to this murderous villain of the air, and as he does not leave the country during the winter months the grouse are never safe from his depredations. Perhaps the scarcity of bush rabbits also accounts for his unusual numbers around the settlements.

THE COYOTE

Robbed, of late, of his staple diet of rabbit, the coyote has been forced to turn to other sources of food supply, and has abnormally preyed upon the grouse and their nests as well as other ground birds. But the recurrent scarcity of rabbits, roughly estimated in seven-year periods, has been going on from time immemorial, and never, as far as it is possible to ascertain, did this periodical disappearance of the rabbit result in the coyote or any other predatory species being forced to turn upon grouse or other birds in such numbers as to reduce them to the danger point. Certainly within the last 21 years, or in say the three rabbit decades preceding the present one, this did not occur. The fact is quite patent, however, that the coyote menace is greater today than it has been for many, many years, merely by reason of the animal's increased numbers concurrent with the comparative scarcity of the rabbits upon which it feeds. Along with the crow and the goshawk, then, the coyote is no doubt an outstanding factor in the wholesale destruction of prairie chicken.

THE WOOD-TICK

Next we come to insect pests. Experienced ornithologists and entomologists are agreed that, as bird life decreases, insect life increases; and it has long been an established fact that the bird life of this continent has steadily decreased. Here we find again Nature's true balance upset by man's intrusion. Senator McLean, of the United States Senate, one of the fathers of the splendid international law protecting migratory birds and prohibiting winter and spring shooting of wild fowl in the United States, recently stated that: "If the destruction caused by insects shows increase during the next twenty years as rapidly as it has increased since 1893, we might well reach a condition so desperate that the protection of the nation against insects will be as necessary and justifiable as is now the protection of the people against contagious diseases and hostile fleets." Of the various insects which attack animal and bird life, the wood-tick is the most conspicuous in Manitoba. It is found most plentifully in scrub-oak, though it frequents all our wooded areas. Some seasons it appears in larger numbers than in others, but the past season (1916) was noteworthy in that a veritable

plague of these insects infested the country. Perhaps this was because there were not sufficient insect-eating birds to keep them down to normal numbers. Early in May I killed several rabbits near Winnipeg, and these animals were literally alive with ticks, their eyes, ears and even their lips being clotted with them, and their entire bodies were covered by the loathsome, blood-sucking pests. After an hour's stroll through the oak and poplar scrub I picked 22 from my own body, and am convinced that no living thing passing through or near the woods at that season could possibly escape them. The rabbits referred to were thin and emaciated and it was quite apparent that they were slowly being sapped to death. We may well ask, how did the young grouse, which appeared shortly afterwards, fare? I believe the answer was given later in the year, when extremely few young birds were seen with the old ones. That the wood-ticks decimated the prairie chicken broods unmercifully I feel perfectly convinced, for I do not believe a young grouse has the strength to battle such a plague of vermin as existed in the woods in the spring of 1916. Herein, I believe, partly lies the explanation for the extreme mortality among partridge or ruffed grouse also, which were even scarcer than the prairie chicken during the autumn just past. It might here be asked how long will the remaining supply of old birds withstand the inroads of hunters, especially if the coming year should prove to be another adverse one?

WEATHER AND FOOD

All young of gallinaceous birds, to which order the prairie chickens belong, are extremely susceptible to adverse weather conditions in the first few weeks after being hatched. Like the young of the turkey and pheasants, young grouse succumb easily to cold, wet weather, though in maturity they are rugged and hardy. An unfavorable hatching season often plays havoc with the young birds, and if subjected to a continuance of cold, drenching rains, only a small percentage will live to reach maturity. The past two breeding seasons in Manitoba have been far from favorable, and here again, we find, in part, an explanation for the small coveys. The exceptionally dry spring of 1915, with barely a drop of water in the lowlands, no doubt caused many chicken to nest on ground which was later flooded by the rains of early June; and intermittent frosts and cold rains continued in many sections of the country right up till July. During the last spring (1916) the weather was for the most part wet and cold till well on in June. Furthermore, the winter of 1915-16 brought unusually heavy snows, which covered most of the low growths, the seeds and berries of which form a large part of the chicken's Winter fare; and the wild fruit crop—haws, cranberries, rose-hips, etc.—had been almost a complete failure.

DESTRUCTION BY MAN

At a glance, therefore, it is plain that the prairie chicken has had an unusually heavy struggle for existence during the past few seasons. This struggle has been constant for at least two years. But if the bird's natural foes have increased and combined to besiege it from all sides to such a degree as to render its reproductive powers and protective instincts temporarily futile, these are nothing as compared with man's unremitting onslaughts.



CROSS-BRED OR HYBRID GROUSE

Under normal conditions grouse show a rapid natural increase. By normal conditions is meant that perfect balance which undisturbed Nature maintains in the animal and vegetable kingdoms. When Nature's laws, in this respect become disturbed, the results are usually injurious or fatal in one or more of her many spheres of organic life. And man is usually the great disturber.

A growing scarcity of wild game must be expected in close proximity to intensive settlement and increasing centres of population. Adverse conditions stem the reproduction of wild life. As the haunts of game become encroached upon and hunted more and more each year, and as the characteristics of the country become changed, many forms of wild life are pushed back, and move to more congenial retreats, or become exhausted. And here we have, beyond a shadow of doubt, the direct solution of the chicken scarcity in many thickly settled districts. Being a bird of thinly wooded country and small prairies interspaced with scrub, and being inclined to hug the wild tracts in preference to the cultivated lands, the sharp-tailed grouse gradually retires as the country is subjected to the axe and the plough. For this primary reason, the sharp-tails are not found as plentifully in many districts as formerly, nor is it likely that they will ever be. On the other hand the pinnated grouse being a lover of the open country, the treeless prairie, and above all, the wide, cultivated fields bordered by grasslands, holds his ground or flees from one open tract to another, until no longer able to avoid the encroachment of the increasing army of hunters, he succumbs to the vanishing point or entirely disappears. Except in very severe weather, the pinnated grouse rarely seeks refuge in the thick woods, as does the sharp-tail. Thus, the pinnated grouse is in far greater danger of being exterminated in his chosen haunts, if subjected to heavy pressure, than is his sharp-tailed cousin of the wild and wooded country. And it would appear that the only panacea when birds become abnormally scarce in the settled districts is an occasional period of immunity from all hunting to enable them to become re-established. Under such protection, and it must be absolute, the pinnated grouse, if not overpowered by a preponderance of natural foes, or continuous adverse weather conditions, should increase; but the sharp-tail will not likely come back in any great numbers from the borders of his beloved wilderness to districts whose growing uncongeniality drove him out.

In spite of stringent laws to the contrary, a price hung above the prairie chicken's head for many years in this Province. Only the scarcity of the birds in the past two years has closed this market. Not long since, grouse by scores and hundreds flowed through the channels of a secret traffic. Hundreds of homes in Winnipeg and elsewhere annually enjoyed their quota of bought birds; and only in the last few years has it been impossible to purchase them in the restaurants, hotels and clubs. Wherever the birds could be killed in profitable numbers there were men to do the killing and spirit them by devious ways to the always-ready purchasers. Hundreds upon hundreds of prairie chicken and partridge succumbed annually to this illegal hunting and marketing, and the authorities were practically helpless to unearth all but a few flagrant cases. Lack of co-operation of the public, of sportsmen and of others interested in game protection, has been, as it will always be, the greatest

obstacle in the way of our force of game wardens rendering the most adequate service.

Co-incident with the gradual decrease in prairie chicken in the settled parts of the country, there has been an enormous increase in the number of people who annually go hunting. With improved weapons and ammunition, and aided in scouring the country by the use of motor cars, people have turned afield to hunt in ever-increasing numbers, and in many districts have all but succeeded in exterminating the chicken.

By natural inclination the prairie chicken frequent the more open territory which is now pretty well occupied by settlement; and in this entire area the present outlook is that, aside altogether from the destruction of birds by natural causes, a continuance of existing conditions will mean that the birds will go on decreasing, as has been the case in the older settled States to the south.

THE GROUSE OF THE WILDERNESS

In the forested areas beyond the range of settlement, where the sharp-tailed grouse is found, but not the pinnated, the birds will no doubt successfully meet their natural enemies on common ground, and though at rare intervals they may be reduced in numbers, as at the present, they will in all probability recover from time to time. In this huge, northern area they are, as they have always been, widely scattered and little hunted, and are probably holding their own as well as when the first white man penetrated their lonely realms. As instances of this, I found the sharp-tailed grouse, in the summer of 1913, to be plentiful on the rocky uplands of Isle Royale, in Lake Superior, forty miles from the Minnesota shore; and in the latter part of August, 1915, Mr. Osborne Scott, of the Canadian Northern Railway, saw a very large flock, which he estimated to contain over a hundred birds, near the Pickitonet Portage on the new H.B. Railway, about 180 miles north of The Pas. The buffalo of the plains was exterminated, but not so the buffalo of the Great Slave Lake country of the north, where it still exists. Will the prairie chicken of the plains meet the same fate, to be represented only by these isolated coveys of the wilderness?

OUTLOOK FOR THE FUTURE

We have herein briefly touched upon what the writer believes to be a two-fold explanation for the decimation of the prairie chicken; first, as contributing causes, the combined over-plus of several natural foes, aided by adverse weather conditions in the past two years, and secondly, their slaughter at the hands of man. A scarcity of grouse in the wilderness country must certainly be the result of natural causes, for we know that hunting cannot be blamed. This is particularly true of the ruffed grouse or partridge; but in the settlements, natural causes, plus man, have reduced the birds to their present extreme scarcity. Nature is ready, no doubt, to restore her proper balance among the different species in due course, but only if man sees to it that his own destructive mistakes are corrected. It is most doubtful that the natural foes of the prairie chicken will continue indefinitely in such preponderance as to ultimately bring the birds to the point of extinction; but if man's destroying tendencies go on unchecked, the future of the birds might well be regarded with alarm. Man has undoubtedly driven

the pinnated grouse before him from one area of settlement to another. This began a hundred years ago in Ohio and Kentucky; until now they are only found in considerable numbers in what might be termed the "last fringe" along the northern extremity of their prairie range. It is merely an unfortunate coincidence that the natural foes of the birds have come upon them in such numbers just at the most critical period of the warfare waged upon them by man.

It should not be beyond the range of possibility to perpetuate the prairie chicken and other grouse in goodly numbers for many years to come, but it will require the combined action of all the people. If the greatest danger to which they are now exposed is removed or lessened for a sufficient period, and the birds are left to combat their natural enemies only, there is every probability that they will re-establish themselves in something approaching their numbers of other years. To make this possible, means to prohibit the hunting of the birds from time to time; but whether this necessarily means a long closed season or not must be determined. Alternate open and closed seasons, with the open seasons as brief as possible, might, it seems, have far-reaching effects if diligently adhered to by the people; and such alternation in seasons would likely tend toward a much better observance of the law than would a long closed period of, say, three or four years.

The future of the prairie chicken can only be foretold in the light of what has already happened to bring it to extinction in its former habitat in the south and east. The facts before us prove that the advance of intensive settlement has driven the birds from old to newer ranges. By such settlement, lands once ideally suited to the birds have become no longer adapted to them. Covers for nesting and shelter from their enemies, especially the man with the gun, have become scarcer and scarcer. Kentucky, the former range of countless pinnated grouse, is an example of this. Here the bird has been completely driven out and forced to draw upon new country for support, first turning to Indiana and Illinois, then to Wisconsin, Minnesota and the Dakotas, and, eventually, and finally, Manitoba, a land where it was never previously known. In Kentucky it was subjected to the natural enemies against which it had contended for centuries, the same enemies which exist today in its adopted range—predatory animals and birds, spring rains and winter snows; but the birds were always able to prevail over these forces of Nature until man stepped in and rendered their range untenable.

With the increased efficiency of hunting equipment, improved facilities for covering the country, and enormous growth of population, the pinnated grouse is again being dangerously harassed, and that in his last refuge. Beside him, his sharp-tailed relative is bearing his share of the brunt of modern methods employed to hunt them down. Can we not get together and adopt adequate means to help them in their desperate struggle? The time most certainly has arrived for us to employ the most effective methods within our power to perpetuate these magnificent and beneficial game birds, not only for ourselves, but for the people of the future.

J. P. TURNER.

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